Hollerith Punches
Jan. 8, 1889

Next: [April 17]

Herman Hollerith [Feb 29] was awarded three US patents (395781, 395782, and 395783) for electromechanical devices that tabulated information using punched cards.

Each card was about 90 mm by 215 mm, the same size as the dollar bill of the time, so storage cabinets designed for money could also be used to hold cards.

The card had enough space for 288 holes organized into 24 columns, although the layout tended to vary from application to application in the early days. It wasn't until [July 20] 1928 that cards and their machines were first made "general purpose".

Each card was fed through a press that dropped wires through the holes into cups of mercury, closing electrical circuits. Relays were activated by the resulting signals to count the holes.

In June, Hollerith entered his tabulator in a competition [April 17] held by the US census to decide what machine would be used for tabulating the 1890 census. He won easily.

George Elmer Forsythe
Born: Jan. 8, 1917;

State College, Pennsylvania
Died: April 9, 1972

Forsythe helped establish computer science as an academic discipline, and Donald Knuth [Jan 10] remarked that "one might almost regard him as the Martin Luther of the Computer Revolution," due to his "untiring efforts to spread the gospel of computing."

Forsythe invented the term "computer science" in his 1961 paper, "Engineering Students Must Learn both Computing and Mathematics," although not everyone liked the name. Louis Fein argued that the field would command more respect if it had a one-word title, such as "synnoetics."

Another of Forsythe's influential papers, "The Role of Numerical Analysis in an Undergraduate Program" listed over fifty ways to employ computing in courses – a novel idea for the time (1959).

Forsythe founded Stanford's computer science department in Jan. 1965 (making it one of the first), and also its earlier incarnation, the Division of Computer Science, based in the math department. In a later history of the department, Knuth quipped that every computer scientist in America may have been approached at least twice with a potential offer of employment.

Joseph Weizenbaum
Born: Jan. 8, 1923;

Berlin, Germany
Died: March 5, 2008

Weizenbaum was both a founder of AI, and outspoken about its limitations, most notably in his 1976 book, "Computer Power and Human Reason," where he argued that AI would always lack human compassion, an intrinsic element of human wisdom.

Weizenbaum developed one of the first natural language processing systems in 1966, named ELIZA after the character in George Bernard Shaw's "Pygmalion" (1912), or (more likely) the heroine of the related movie, "My Fair Lady" (1964).

ELIZA read input typed at a terminal and responded in a way similar to a human. However, it was all "smoke and mirrors", based on the identification of keywords and the generation of replies using a canned set of sentence templates. However, this was Weizenbaum's intention – he wanted to highlight the shallowness of human-machine communication, and the ease in which people are fooled.

Weizenbaum once recalled that his secretary asked him to leave the room while she was conversing with ELIZA, even though she knew it was only software.

Joseph Weizenbaum (2005). Photo by Ulrich Hansen. CC BY-SA 3.0.

The most famous version of ELIZA was probably DOCTOR, which responded to questions in the style of a psychotherapist. A typical exchange with a female patient went something like the following:

ELIZA: Hi! I'm Eliza. What's your problem?

Patient: Men are all alike.

ELIZA: In what way?

Patient: They're always bugging us about something or other.

ELIZA: Tell me more about that.

One story, probably a joke, involved Weizenbaum and a friend named Simon. Simon was walking to the cafeteria one day when Weizenbaum stopped him and said, "I have a problem I want to talk to you about." Simon considered for a moment and replied, "Tell me more about that," and walked on.

A successful successor to ELIZA was PARRY [Jan 12].

Weizenbaum often remarked on how science proceeded by simplifying reality, and told a related joke: One dark evening a policeman comes across a drunkard on his hands and knees searching beneath a lamppost. He asked the man what he was doing and the man replied that he had lost his keys over there, pointing off into the darkness. "So why are you looking for them under the streetlight?" inquired the policeman. The man replied, "Because the light is so much better over here."

Edward E. Zajac
Born: Jan. 8, 1926;
Cleveland, Ohio
Died: Jan. 30, 2011

Zajac's 30-year career at Bell Labs [Jan 1] included stints in the mathematics research unit and later as head of economics research.

One piece of early work was concerned with the maths required to stabilize orbiting communications satellites. To demonstrate his ideas, Zajac created the first ever computer-animated film in 1961, entitled "Simulation of a Two-Gyro Gravity-Gradient Attitude Control System". The four-minute film, narrated by Zajac, simulated the motion and auto-rotation of a satellite so it would stay pointing towards the Earth.

Bell Labs in the early 1960's was home to many pioneers in computer arts, including A. Michael Noll [Aug 29] and Béla Julesz (digital art), Frank Sinden and Kenneth C. Knowlton [Feb 28] (animation), Max V. Mathews [Nov 13] and John R. Pierce [March 27] (digital music).

CNC
Jan. 8, 1940

George R. Stibitz [April 30] demoed his "Model K" [Nov 00] to Bell Labs executives in late 1938 who gave him the go-

ahead to build a full-scale calculator based on the same principles. Stibitz completed its design in Feb. 1939, and construction began in April, with the help of engineer Samuel Williams.

The Complex Number Calculator (CNC) became fully operational on this day. As the name suggests, one novel feature was its support for complex number arithmetic which cropped up in a variety of filter and transmission line problems.

The CNC was constructed from around 450 binary relays and ten multipole relays (called "crossbars") for storing numbers. It utilized a decimal system with the decimal point fixed at the beginning of each number.
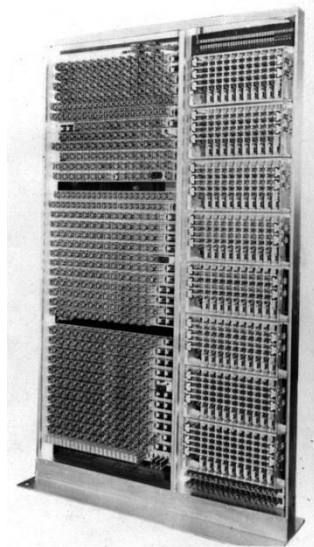
The Complex Number Calculator. (c) Lucent Technologies, Inc.

The machine occupied two large cabinets, eight feet high, five feet across, and a foot thick. Operators sat at three modified teletypes connected by a multiple-wire cable, which meant they could be located in a different room.

Stibitz extended this "remote operation" idea on [Sept 9] 1940, during a demonstration for the American Mathematical Society at Dartmouth College, when the CNC became the first computing machine to be operated remotely over a phone line.

Bell Labs built several relay calculators during WWII based on Stibitz 's design, and the very first CNC was retroactively named the Model I.

Minsky's SNARC
Jan. 8, 1952

Marvin Minsky [Aug 9], at this time still a graduate student in Harvard's Psychological Lab, finished a report on the SNARC (Stochastic Neural Analog Reinforcement Calculator), quite possibly the first ever self-learning machine.

Using only vacuum tubes, it implemented a randomly connected network of about 40 'synapses' that utilized a connectionist neural network [Jan 00] approach to strengthen recently-used pathways.

IBM Antitrust Suit Withdrawn
Jan. 8, 1982

The US Department of Justice's (DOJ) withdrew its antitrust suit against IBM, filed a mere 13 years previously (on [Jan 17], 1969). During the six most critical years of the trial, 1975 to 1980, the parties called nearly 1,000 witnesses and generated over 100,000 pages of transcripts. At one stage, IBM retained 200 attorneys.

In fcat, after it was over, IBM voluntarily decided to spin off some of its divisions. For example, its services division became "Integrated Solutions and Services Corp."

Ironically some of the new companies suffered from problems that IBM had predicted would occur as a result of a forced breakup – the managers found it difficult to operate independently of IBM. For example, in the 1990's, Integrated Solutions was absorbed back into IBM.

The antitrust suit was dropped on the same day that the DOJ announced the settlement of the

other massive antitrust trial of the time: US vs. AT&T [Jan 1], which led to the breakup of AT&T in 1984.

Hacker Manifesto
Jan. 8, 1986

"Legion of Doom" [July 22] member, Loyd Blankenship (aka "The Mentor"), published an influential essay following his arrest by the FBI. "The Conscience of a Hacker," sometimes referred to as "The Hacker Manifesto," appeared in issue 7 of PHRACK [Nov 17]. The prose style of the treatise is quite distinctive:

We explore, and you call us criminals. We seek after knowledge, and you call us criminals. We exist without skin color, without nationality, without religious bias, and you call us criminals.

The essay was quoted several times in the movie "Hackers" [Sept 15], but the movie's street-cred is tarnished a little by the fact that it believes the piece appeared in "2600" [Jan 12].

A somewhat less florid explanation of hacker principles can be found in Steven Levy's [Jan 26] "Hackers: Heroes of the Computer Revolution" (1984). Another foundational text for the movement, "Computer Lib/Dream Machines" (1974),was written by Ted Nelson [June 17].

Scratching
Jan. 8, 2007

Version 1.0 of Scratch was released, a free visual programming language, primarily aimed at kids. It was designed by a team led by Mitchel Resnick in MIT's Media Lab [Dec 1] Lifelong Kindergarten Group.

Scratch's interface lets users stack and nest code blocks to build an event-driven program for manipulating on-screen graphics called sprites.

Hello World [July 21] in Scratch. Created by Mberry. CC BY-SA 3.0.

Emphasis is placed on sharing and reusing code, with Scratch projects being archived on a community website.

Resnick was influenced by Seymour Papert [Feb 29]'s Logo, but thought that it "was too fussy – like most text-based programming languages, getting the syntax and punctuation right was very important,"

Scratch takes its name from "scratching", the knack of mixing music clips together by manipulating a vinyl record on a turntable.